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ONTARIO

Ministry of the ENVIRONMENT

Water Pollution Study

Village of Drayton
County of Wellington

1972

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R E P O R T

on

WATER POLLUTION SURVEY

of the

VILLAGE OF DRAYTON

Township of Peel

County of Wellington

District Engineers Section

Sanitary Engineering Branch

Dates of Sampling: November 20-21, 1972

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INTRODUCTION

The purpose of this survey was to update previous water pollution surveys conducted in the Village of Drayton. Surveys of this nature are conducted routinely throughout the Province of Ontario by the Sanitary Engineering Branch of the Ministry of the Environment and form a basis for evaluating any existing or potential sources of pollution.

Recommendations are subsequently made pertaining to pollution abatement.

LOCATION

The Village of Drayton is located in the County of Wellington at the crossing of County Roads 8 and 11, approximately 15 miles south-east of Palmerston. The Conestogo River flows through the Village.

POPULATION

The present population of the Village is 752 (1972 Municipal Directory).

SOIL AND TOPOGRAPHIC CONDITIONS

There are three basic regions within the Village boundaries: the Huron Series, the Toledo Series and Bottom Land.* The Huron Series, which is a loam, provides moderate to good drainage and is smooth to moderately sloping in nature. This soil contains greater amounts of clay and silt than sand but is often blocky thus effecting a somewhat greater permeability than would be expected

from a clay or clay-loam texture. The Huron Series is found through most of the Village. The Toledo Series, which is a clay loam, is found in level and depressional areas and provides poor drainage. This type of soil exists mainly in the north-east corner of the Village near its limits. The third series, Bottom Land, lies along the Conestogo River and contains variable alluvial deposits.

* D. W. Hoffman, B.C. Matthews, R. E. Wicklund, Soil Survey of Wellington County Ontario, Report No. 35 of the Ontario Soil Survey, Guelph, Ontario, 1963.

EXISTING SERVICES

Sewage

There are no municipal facilities for the collection and treatment of domestic sewage within the Village. The disposal of sanitary wastes is left to the individual property owners and in most cases these consist of septic tank and tile field systems.

The municipality has installed a storm water collector system for a portion of the Village.

Water

There is no municipal water supply in the Village. However, there are seven communal water systems, serving approximately 66 residences, which are routinely inspected by the Ministry. The rest of the Village is served by individual wells.

PAST SURVEYS AND REPORTS

In 1957, a pollution survey was prepared and reported that several drains and septic tank systems are connected to the storm sewers. No action by the municipality was taken on this report.

In 1962, a survey was made to review the previous pollution survey and it was recommended that the Village discontinue the practice of allowing polluting wastes to discharge to the Conestogo River. No action was taken by the municipality in regard to this recommendation.

In 1965, a water pollution survey report concluded that highly polluted wastewater is being discharged into the Conestogo River via municipal storm sewers and drainage ditches. It also indicated that a large number of private wells were contaminated. The report recommended that the most satisfactory method of pollution control would be both water supply and sewage disposal facilities provided on a municipal basis.

In 1968, a design report, undertaken by the OWRC as a Provincial project, for water and sewage works facilities was completed. The proposal for the works was sent to the Village for their consideration. Subsequently no action was taken by the Village.

In 1969, a bacteriological sampling survey was undertaken on the private water supplies throughout the Village. The analyses results indicated that 64% of the homes sampled had bacteriologically contaminated water supplies.

Early in 1972 the water works program was discontinued and the rates were revised for a sewage works program only. The Village subsequently rejected the revised proposal as being economically impossible.

DISCUSSION OF RESULTS

A total of 13 bacteriological and chemical samples were collected from various locations within the Village and the analyses results of these samples are shown in Table I.

The upper bacteria limits set by this Ministry's "Guidelines and Criteria for Water Quality Management in Ontario" for public recreational waters is 100 fecal and 1000 total coliform bacteria per 100 ml of sample. With reference to Table I and these guidelines, the water above the Village was acceptable for public recreation, but the water downstream from Mill Street was beyond the Ministry's recommended limits for public recreational waters.

The sample points A, B, and C are from a drainage ditch which runs through the eastern section of the Village as shown in Figure I. The sample analyses results showed total and fecal coliform bacteria in both significant and increasing values between points A and B. The bacteriological levels decreased between points B and C, and the Biochemical Oxygen Demand values decreased progressively along the length of the ditch. Such decreases are probably due to melting snow dilution and natural oxidation. The area around the outfall showed signs of decomposing organic matter and emitted a septic odour, indicating the presence of domestic waste in the ditch. Chemical sample analyses from the same points also confirmed this, as shown in Table I.

VILLAGE OF DRAYTON
SANITARY SURVEY (1972)

FIGURE 1

SCALE 0 250 FEET

→ STORM SEWER
③ SAMPLING POINT

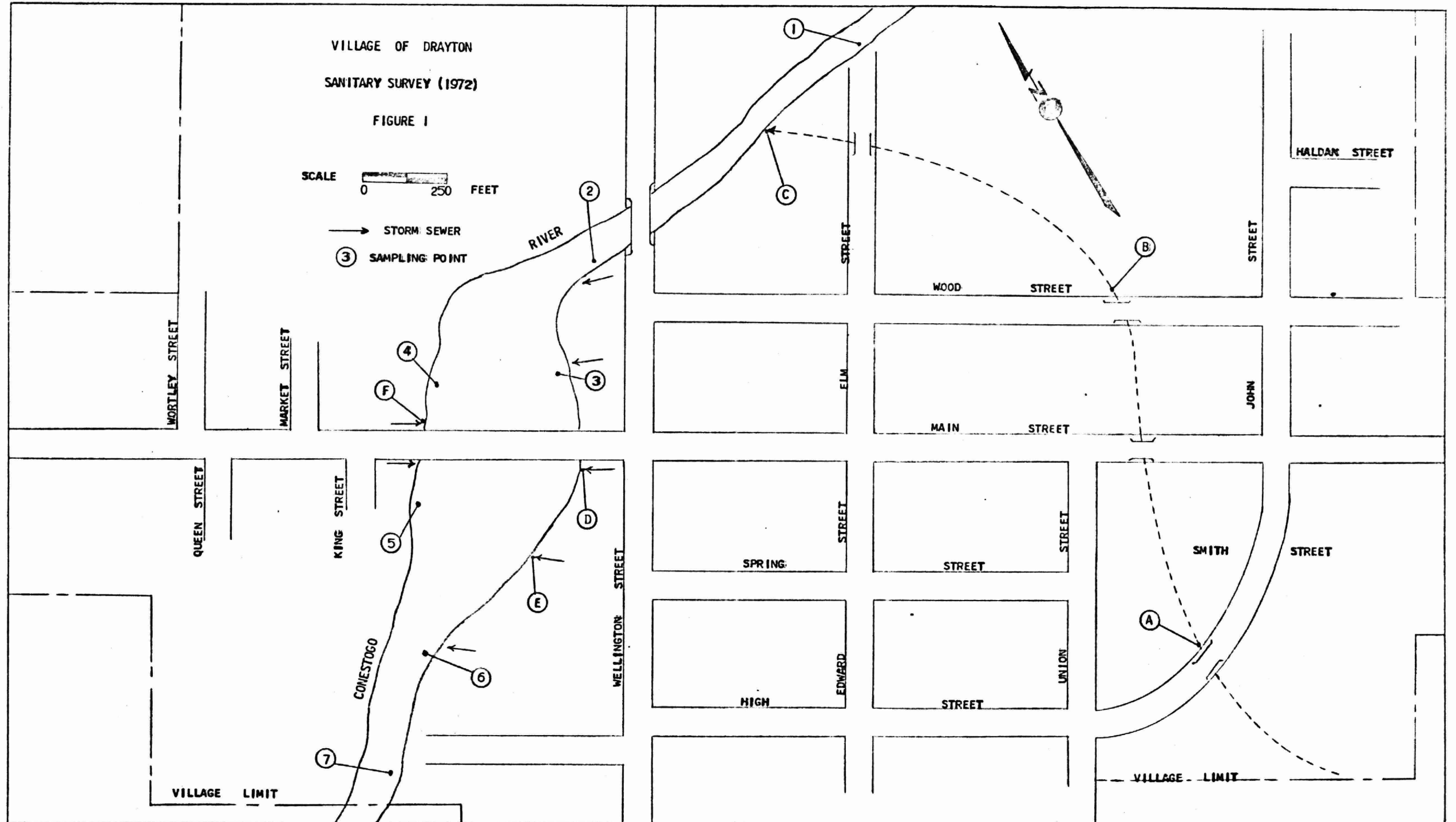


TABLE I

SAMPLE LOCATIONS

DATES: November 20-21, 1972

SAMPLE POINT	SAMPLE LOCATION	COLIFORMS /100 ML		BOD ₅	SUSP. SOLIDS	NITROGEN AS N				PHOSPHORUS AS P	
		Total	Fecal			Free Ammonia	Total Kjeldahl	Nitrite	Nitrate	Total	
1	River - at foot of Elm Street	100	50	2	0	.1	2.0	.01	.99	.1	
2	River - upstream of outfall behind creamery	600	190	1.4	5	.1	.8	.01	1.1	.04	
3	River - 150' north of Main St. bridge, east bank	1300	210	1.8	5	.1	.8	.01	1.1	.04	
4	River - 100' north of Main St. bridge, west bank	100	20	1.6	5	.1	.6	.01	1.1	L .1	1 0 1
5	River - 100' south of Main St. bridge, west bank	1800	50	1.8	0	.1	.8	.01	1.2	L .1	
6	River - downstream of 3rd outfall below Main Street bridge	26,000	1100	3.0	5	.6	1.8	.02	1.5	.30	
7	River - downstream of Mill St., east bank	5500	400	2.0	5	.1	.8	.01	1.1	L .1	
A	Drainage ditch - at Smith Street	78,000	8000	30	20	.1	5.5	.01	L .1	.85	
B	Drainage ditch - at Wood Street	400,000	68000	20	10	.4	6.0	.59	.30	1.9	
C	Drainage ditch - at river	156,000	29000	10	10	.1	3.0	.09	.90	.65	
D	Outfall - Main St. storm sewer, east bank	5,600,000	135,000	42	30	2.2	8.0	.51	.30	1.5	

Table 1 - continued

SAMPLE POINT	SAMPLE LOCATION	COLIFORMS /100 ML		BOD ₅	SUSP. SOLIDS	NITROGEN AS N				PHOSPHORUS AS P
		Total	Fecal			Free Ammonia	Total Kjeldahl	Nitrite	Nitrate	Total
E	Outfall - Second downstream of Main Street bridge, east bank	7,800,000	53,000	9.5	10	3.8	4.5	.45	5.0	.05
F	Outfall - north- west corner, Main Street bridge	246,000	600	9.5	10	.1	.8	.07	4.1	.1

L = less than

Sample points D and E were from storm sewers found to be discharging an effluent on the east bank of the Conestogo River. The analyses of the bacteriological and chemical samples of the effluent from the Main Street storm sewer outlet, Point D, indicate by means of high bacteriological, Biochemical Oxygen Demand, and Suspended Solids levels, that domestic wastes were present in the discharge from the storm sewer. The effluent temperature was notably warmer than the air temperature at the time, also indicating that the storm sewer contents can be attributed to other than natural storm sewer discharge. Sample point E, from the second drain outlet south of the Main Street bridge, similarly indicates the discharge of domestic waste. The area around both outfalls showed signs of decomposing organic matter.

Sample point F was from a drain outlet at the north-west corner of the Main Street bridge. The analyses results of the bacteriological and chemical samples of the drains discharge indicate the presence of domestic wastes.

Other drain outfalls were noted along the river bank but were not sampled due to insufficient flow.

DISCUSSION

In consideration of the chemical and bacteriological analyses of the samples taken from the drainage ditch and the storm sewer outfalls, it is evident that untreated or partly treated domestic wastes from the Village are gaining access to the Conestogo River by way of illegal storm sewer connections or faulty septic tank systems.

The Main Street storm sewer, which receives flow from the Wellington Street storm sewer, was found to be the largest contributor of domestic wastes, in both flow and in strength, to the Conestogo River.

It is the opinion of the Wellington-Dufferin-Guelph Health Unit, expressed in a telephone conversation subsequent to this survey, that virtually all of the existing lots are undersized, in particular, those in the Wellington Street business section, in relation to minimum areas required for sub-surface disposal systems. Thus it would not be suitable to repair or replace any septic tank systems that may have failed.

CONCLUSIONS

As a result of this survey and previous studies conducted in the Village of Drayton, it may be concluded that domestic wastes originating from locations throughout the Village are being discharged to the Conestogo River. Correction of the adverse conditions found during this survey may only be accomplished, in the opinion of this Ministry, by the installation of sanitary sewers and sewage treatment works.

RECOMMENDATION

It is recommended that the Village of Drayton take immediate action to eliminate all domestic waste discharges to the Conestogo River by the provision of a municipal sewerage system.

Prepared by:.....*D.B. Robb*.....
D. B. Robb,
District Engineers Section
Sanitary Engineering Branch

Date Due

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Water Pollution Survey,
Village of Drayton,
County of Wellington 1972

TERMINAL STREAM: GRAND R.

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